

REMARKS

Claims 27, 29-42, 44-46, 48-50, 52-54 and 58-61 are pending in the application.

Claims 27, 29-42, 44-46, 48-50, 52-54, and 58-61 stand rejected.

Formal Matters

The specification has been amended to correct various informalities.

Rejection of Claims under 35 U.S.C. § 103

Claims 27, 29-42, 44-46, 48-50, 52-54 and 58-61 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Krishnamurthy, U.S. Patent No. 6,823,436, in view of Miyata et al., U.S. Publication No. 2003/0225972. Applicants respectfully traverse this rejection. Applicants submit that the Office action fails to establish a *prima facie* case of obviousness because both references fail to teach various features of claim 27 and neither reference provides any motivation to combine their disclosures to provide the features of claim 27.

Claim 27 distinguishes over Krishnamurthy and Miyata because both references, taken alone or in combination, fail to teach various features of claim 27. Claim 27 recites, “comparing at least one location of the first set of locations to at least one location description, wherein the at least one location description has a corresponding property describing a type of operation,” and “performing the operation upon a given location in the first set of locations of the plurality of locations in the storage area only if the given location is described in the at least one location description.” The Office action suggests that Krishnamurthy teaches both the comparing and performing steps of claim 27 and suggests that Miyata teaches a location description that has a

corresponding property describing a type of operation. In the following discussion, Applicants show that (1) Miyata does not teach a location description that has a corresponding property describing a type of operation, (2) Krishnamurthy does not teach the comparing and performing steps of claim 27.

(1) Miyata fails to teach a location description having a property describing a type of operation

Neither Krishnamurthy nor Miyata teaches “a location description having a corresponding property describing a type of operation,” as recited in claim 27. The Office action recognizes that “Krishnamurthy does not explicitly describe the claim’s detail of a description structure [i.e., a location description having a corresponding property describing a type of operation.]” Page 3. The Office action then suggests that Miyata remedies this deficiency of Krishnamurthy. Applicants disagree. Miyata does not teach a location description having a corresponding property describing a type of operation.

Miyata’s metadata structure with attribute fields is not comparable to a location description having a corresponding property describing a type of operation. The Office action states,

Miyata describes a file system management comprising metadata structures for directions, data files and data blocks (Miyata’s Fig. 4: #402). The metadata structure has attribute fields to describes [sic] property of the corresponding data blocks. The attributes describe the type of operations for the corresponding data blocks such as duplicate operation (Miyata’s Fig. 2, paragraphs 50-56; Fig. 11, paragraphs 87-91.)

Page 3. Element 402 in Fig. 4 is a file attribute array region that is within metadata region 404. However, the cited portions of Miyata do not teach that the attribute fields in the file attribute array region describe the types of operations for the corresponding data blocks.

Miyata's Fig. 2 and paragraphs 50-56 do not teach that the attribute fields describe operations for the corresponding data blocks. Fig. 2 is "a table of block attributes stored in the disk unit." Paragraph 41. However, nothing in the description of Fig. 2 (paragraphs 41-43) teaches or suggests that the block attributes describe operations for the corresponding data blocks. Paragraph 52 discusses the contents of the file attribute array region, "In the file attribute array region 402, there are registered the data representing the kind of file, date the file is written, owner of the file, right for making a reference to the file, and array of the data block numbers." None of these attributes describes an operation for the corresponding data blocks. The Office action suggests that the attributes describe a duplicate operation. However, paragraphs 50-56 do not mention a duplicate operation. Thus, Fig. 2 and paragraphs 50-56 do not teach a location description having a corresponding property describing a type of operation.

Applicants also submit that Miyata's Fig. 11 and paragraphs 87-91 do not teach that the attribute fields describe a type of operation for the corresponding data blocks. Fig. 11 is "a flowchart for registering/resetting the duplicating function." Paragraph 87. Paragraph 86 describes an attribute bit 203, which "has a meaning of the necessity of forming a ditto, forming the ditto when the value thereof is 1, and not forming the ditto when the value thereof is 0." Thus, attribute bit 203 indicates when a ditto should or should not be formed. A ditto is a duplication of the metadata: "[W]hen the ditto of the file N is to be registered, the host computer 13 conducts the processing for duplicating the metadata 404 of the file system prior to duplication the file." Paragraph 89. Accordingly, attribute bit 203 indicates whether metadata for a file should be duplicated, but does not indicate whether the corresponding files should be duplicated. Furthermore, attribute bit 203 does not describe a type of operation.

Claim 27 distinguishes over paragraphs 87-91 of Miyata because Miyata fails to recite a description that “has a corresponding property describing a *type* of operation,” as recited in claim 27. Miyata’s attribute bit 203 does not describe a type of operation. Miyata’s attribute bit 203 only indicates whether metadata should be duplicated, thus indicating whether an operation is to be performed but not indicating a type of operation.

Furthermore, even if attribute bit 203 did describe a type of operation, which Applicants do not concede, Miyata’s attribute bit still would not be comparable to the property describing a type of operation recited in claim 27. Claim 27 recites that the operation is performed upon a “given location in the first set of locations . . . only if the given location is described in the at least one location description.” In other words, the at least one location description is a description of the same data that the operation is performed on. Miyata’s attribute fields (metadata), in contrast, are descriptive of an array of data block numbers, but attribute bit 203 indicates whether the metadata itself is to be duplicated, not whether the data block is to be duplicated. Thus, Miyata’s metadata identifies a file, but does not have a corresponding property describing an operation to be performed on that file. Therefore, Miyata does not show, teach, or suggest “at least one location description [that] has a corresponding property describing a type of operation,” as recited in claim 27.

(2) Krishnamurthy does not teach the comparing and performing steps of claim 27

Krishnamurthy does not teach or suggest “comparing at least one location of the first set of locations to at least one location description” and “performing the operation upon a given location in the first set of locations of the plurality of locations in the storage area only if the given location is described in the at least one location description,” as recited in claim 27. With respect to these feature of claim 27, the Office action states, “Krishnamurthy’s column 4 lines

30-60 describe extends of the data of the source drive are chosen to be copied over,” and “Krishnamurthy’s Fig. 3 #36, snapshot data to target drive in units of segments; column 4, lines 1-13.” Page 3. Neither of the cited portions of Krishnamurthy teaches the comparing and performing steps of claim 27.

Applicants recognize that Krishnamurthy teaches that extents of data are “copied over from the source drive to the target drive as part of the snapshot copy.” Column 4, lines 40-41. Applicants also recognize that Krishnamurthy shows that, at a certain point in time, “the only portions of the data that have been copied over are [1] Offset 0, Extent 600, [2] Offset 728, Extent 472, and [3] Offset 3048, Extent 200.” Column 4, lines 46-49.

It appears that the Office action is suggesting that Krishnamurthy, in order to copy just three extents, must have performed some type of comparing operation to determine which extents to copy. However, the reason that only three extents of data have been copied to the snapshot is not because Krishnamurthy performed a comparison. The reason that only three extents of data have been copied in this example from Krishnamurthy is because the copying is “in its early stage, when not much data has been copied over from the source drive to the target as part of the snapshot copy.” Column 4, lines 41-42. Thus, it appears that Krishnamurthy performs a copying operation in response to a command to create a snapshot but does not perform the copying in response to the result of a comparison.

Indeed, Applicants are unable to find anything in the cited portions of Krishnamurthy that teach or suggest comparing a location to a location description. Furthermore, Applicants are unable to find anything in the cited portions of Krishnamurthy that teach or suggest performing an operation on a location only if the location is described in a location description. Accordingly, claim 27 clearly distinguishes over Krishnamurthy by reciting “comparing at least

one location of the first set of locations to at least one location description” and “performing the operation upon a given location in the first set of locations of the plurality of locations in the storage area only if the given location is described in the at least one location description.” Miyata does not remedy these deficiencies of Krishnamurthy.

Therefore, claim 27 clearly distinguishes over any combination of Miyata and Krishnamurthy because both references fail to teach various features of claim 27. For at least this reason, the Office action fails to establish a *prima facie* case of obviousness.

Applicants also submit that a combination of Miyata and Krishnamurthy fails to establish a *prima facie* case of obviousness because neither reference provides any motivation to combine their disclosures to provide the features of claim 27. The Office action states, “It would have been obvious to one of ordinary skill in the art at the time of invention to include system management modules and metadata structures as suggested by Miyata in Krishnamurthy’s system to allowing [sic] users specifying the operations for the corresponding data duplicates the data stored in the storage unit into a separate medium in a high-speed manner (Miyata’s paragraphs 6-8).” However, Krishnamurthy already provides snapshot management modules and metadata structures. *See* column 3, lines 17-21 and column 4, lines 1-60. Thus, it is unclear why Krishnamurthy would look to Miyata to provide these functions.

Furthermore, the Office action incorrectly suggests that the paragraphs 6-8 of Miyata teach that management modules and metadata structures allow users to specify operations in a high-speed manner. In paragraph 6, Miyata states that “having the file reside in the main storage, therefore, the file can be executed at a high speed.” In paragraph 8, Miyata states, “When the storage unit is provided with a cache, therefore, it becomes possible to make a reference to the data at a high speed.” Thus, Miyata, in paragraphs 6-8, teaches that using a

cache allows a file to be executed at high speed, but does not teach that management modules and metadata structures improve operation speed. Indeed, since Miyata teaches the previously described metadata copying operation, adding the features of Miyata's system to Krishnamurthy's system might actually slow down Krishnamurthy's system as a result of performing the extra copying operation. Thus, Applicants submit that one of ordinary skill in the art would not be motivated to combine the disclosures of Krishnamurthy and Miyata for the reason provided in the Office action. Furthermore, Applicants are unable to find any motivation in either reference for combining their disclosures to provide the features of claim 27.

Accordingly, Applicants submit that the Office action fails to establish a *prima facie* case of obviousness. Thus, Claim 27 clearly distinguishes over any permissible combination of Krishnamurthy and Miyata. Applicants submit that these arguments apply with equal force to independent claims 42, 46, and 50. Thus, independent claims 27, 42, 46, and 50 are allowable for at least the foregoing reasons. Accordingly, the respective dependent claims 28-41, 43-45, 47-49, 51-54, and 58-61 are allowable for at least the same reasons that claims 27, 42, 46, and 50 are allowable.

CONCLUSION

In view of the amendments and remarks set forth herein, the application is believed to be in condition for allowance and a notice to that effect is solicited. Nonetheless, should any issues remain that might be subject to resolution through a telephonic interview, the Examiner is invited to telephone the undersigned at 512-439-5084.

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on April 24, 2006.

 4/24/06
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Respectfully submitted,



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